

**OBSERVATIONS ON THE NESTING BEHAVIOR OF *ALYSSON*
CONICUS PROVANCHER (HYMENOPTERA: SPHECIDAE)**

MARK F. O'BRIEN AND FRANK E. KURCZEWSKI

Department of Environmental and Forest Biology, College of Environmental Science and Forestry, Syracuse, New York 13210.

Abstract.—Brief observations on the nesting behavior of *Alysson conicus* Provancher are presented. Behavioral comparisons are made with *A. melleus* Say, and the only significant difference is the genera of prey.

Except for *A. melleus* Say (Hartman, 1905; Rau and Rau, 1918; Evans, 1966; Kurczewski and Kurczewski, 1971), little is known about the nesting behavior of the Nearctic species of *Alysson*. None of the nine other U.S. species has been reported nesting or taken with prey. Possible reasons for this dearth of information about the Nearctic *Alysson* include their small size, rather secretive behavior, propensity for nesting in damp shaded soils and inconspicuous nest entrances.

Evans (1966) summarized the nesting behavior of *A. melleus* as follows: (1) Semi-gregarious females which nest in relatively cool, moist, friable soils; (2) mostly vertical burrows with off-center entrances surrounded by tumuli of small pellets of moist soil; (3) multicellular nests with cells constructed progressively back toward the entrance; (4) immature or adult cicadellid prey, rarely delphacids, which do not recover from the paralysis; (5) prey transport in flight or partly on the ground, the latter method prior to nest entry; (6) prey grasped by its beak with the mandibles and carried venter-up; (7) direct entry into the open nest without release of the prey unless the entrance has been disturbed; and (8) egg laid longitudinally on the side of the ventral thorax of one of the uppermost prey in the cell after completely provisioning the cell.

Alysson conicus Provancher occurs from Michigan, Ontario, and New Hampshire south to Maryland (Krombein, 1951, 1967). Nothing is known about its biology or ecology.

We observed *A. conicus* nesting in August 1978 at the Cranberry Lake campus of the State University of New York College of Environmental Science and Forestry. Females nested in a firm, moist, sandy and gravelly road paralleling Sucker Brook and Cranberry Lake. Predominant vegetation

surrounding the road was sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), yellow birch (*Betula allegheniensis*), wild black cherry (*Prunus serotina*), meadowsweet (*Spiraea latifolia*), and various grasses and sedges.

Alysson conicus females were observed nesting in sunlit areas on the road. Nesting activity occurred between about 0900–1100 and 1500–1800 hours on sunny days but more or less continuously on cloudy days. No other species of *Alysson* were found at this site; however, *A. melleus* and *A. oppositus* Say were collected in a sandpit near Wanakena, New York, 5 miles away across the lake at 1015 hours during full sunlight.

Provisioning females of *A. conicus* transported the leafhoppers in flight venter up and head forward, grasping the prey's beak with the mandibles, but they always carried the leafhoppers on the ground in proximity to the nest entrance. They took flight upon the slightest movement, landing briefly and flying away quickly.

Because of the small and inconspicuous entrances, nests of *A. conicus* were difficult to locate. We accidentally unearthed one of the nests while excavating a nest of *Crabro advena* Smith. It contained two small cells at depths of 1.5 and 4.2 cm below the surface. One cell contained 7 *Empoa albicans* Walsh (Cicadellidae), the other 5 *E. albicans* and 2 *E. venusta* (McAtee). The adult leafhoppers were positioned in the cells mostly ventral side upward and head inward. In both cells the egg was destroyed during excavation of the nest. Several other prey taken from females of *Alysson conicus* proved also to be adults of *Empoa albicans* a species common in the low vegetation paralleling the nesting sites. The leafhoppers in the cells appeared to be dead or at least fully paralyzed with no evidence of breathing or appendage movement.

DISCUSSION

Alysson conicus is similar to *A. melleus* in its preference for nesting in damp sand, and in its nearly continuous activity on cloudy days but divided activity during morning and late afternoon on bright, sunny days. The *A. conicus* nest, containing small provisioning cells one more or less above the other, may represent the "typical" *Alysson* nest. However, the two *A. conicus* cells which we found were separated by 2.7 cm, farther apart than any of the reported intranest cells of *A. melleus*. *Alysson melleus* and *A. conicus* are alike in their transport of prey in that both species may fly into the nesting area but proceed on the ground to the nest entrance. The leafhopper prey of both species are killed outright or at least fully paralyzed. The genus *Empoa* (Cicadellidae), the only known prey of *Alysson conicus*, has not been reported as prey of *A. melleus*.

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